

1/2/04

TWIN CLUTCH SYSTEM FOR A TRANSMISSION,  
PARTICULARLY FOR A TWIN CLUTCH TRANSMISSION

[0001] The present invention is directed to a twin-clutch system for a transmission, in particular for a twin-clutch transmission, having at least two clutches, each of which has a clutch cover, to which at least one clutch-release system which actuates the clutches is secured.

[0002] Transmissions, in particular automated transmissions are known from vehicle engineering. Twin-clutch transmissions are used in vehicles, for example, to facilitate a gear shifting without any interruption of the tractive force. Twin-clutch transmissions of this kind, in particular, have twin- or combi-clutch systems.

[0003] Such twin-clutch systems are actuated via at least one clutch-release system. In this context, every clutch-release system or the bearing for each clutch can be mounted on the clutch cover or in the clutch bell housing. This increases the requirement for rigidity for each clutch cover, in order to be able to absorb the force acting on the particular clutch cover. The need arises, in particular, for a cover-mounted bearing when using a traction-slip control for the clutches.

[0004] The object of the present invention is, therefore, to propose a twin-clutch system for which the mechanical loading capacity of the clutch cover will be increased, in particular.

[0005] This objective is achieved in accordance with the present invention by a twin-clutch system for a transmission, in particular for a twin-clutch transmission, having at least two clutches, each of which has a clutch cover, to which at least one clutch-release system for actuating the clutches is attached, a fastening member for coupling the two clutch covers being provided. In this manner, the clutch covers of the twin-clutch system are fastened to one another, thereby altogether enhancing the rigidity or loading

capacity.

[0006] Within the scope of one advantageous embodiment of the present invention, it may be provided for at least one connecting element to be used as a fastening member, which interconnects the two clutch covers. Besides enhancing the rigidity of the cover-mounted bearing, i.e., the bearing of the clutch itself, advantages are also derived for actuation of the clutch. The deformations caused by the clutch-release forces are reduced, and the controllability of the clutches is improved on the whole.

[0007] Preferably, one or even a plurality of bolt-shaped connecting elements may be used, which have receiving sections at their ends, for example. As receiving sections, annular grooves or the like may preferably be used. Other suitable connection possibilities may also be employed, however, to increase the loading capacity of the clutch cover.

[0008] Other advantages and advantageous embodiments are derived from the dependent claims and from the drawing described in the following.

[0009] The only figure of the present invention shows a cross-sectional detail of a twin-clutch system according to the present invention.

[0010] The proposed twin-clutch system is part of a twin-clutch transmission, the twin clutch including a first clutch 101 as a start-up clutch and a second clutch 102 as a power-shift clutch. The two clutches 101, 102 each have a clutch cover 103, 104. Additionally, bearing 105 is provided on clutch cover 103. Two torsion dampers 106, 107 for clutches 101, 102 are also shown. Moreover, one part of crankshaft 108 of the vehicle is indicated. The illustrated twin clutch is actuated via at least one clutch-release system 109.

[0011] In accordance with the present invention, at least one fastening member is provided. In the exemplary embodiment shown here, a bolt-shaped connecting element 110 is used as a fastening member to couple clutch cover 103 of clutch 101 to clutch cover 104 of clutch 102. In addition, receiving sections are provided at each of the two

ends of bolt-shaped connecting element 110. The receiving sections are formed as annular grooves 111, 112, in which clutch covers 103 and 104 are secured, respectively. In this manner, the loading capacity of clutch covers 103, 104 is advantageously increased.

[0012] The claims filed with the application are proposed formulations and do not prejudice the attainment of further patent protection. The applicant reserves the right to claim still other combinations of features that, so far, have only been disclosed in the specification and/or the drawings.

[0013] The antecedents used in the dependent claims refer, by the features of the respective dependent claim, to a further embodiment of the subject matter of the main claim; they are not to be understood as renouncing attainment of an independent protection of subject matter for the combinations of features of the dependent claims having the main claim as antecedent reference.

[0014] Since, in view of the related art on the priority date, the subject matters of the dependent claims may form separate and independent inventions, the applicant reserves the right to make them the subject matter of independent claims or of divisional applications. In addition, they may also include independent inventions, whose creation is independent of the subject matters of the preceding dependent claims.

[0015] The exemplary embodiments are not to be understood as limiting the scope of the invention. Rather, within the framework of the present disclosure, numerous revisions and modifications are possible, in particular such variants, elements and combinations and/or materials, which, for example, by combining or altering individual features or elements or method steps described in connection with the general description and specific embodiments, as well as the claims, and contained in the drawings, may be inferred by one skilled in the art with regard to achieving the objective, and lead, through combinable features, to a new subject matter or to new method steps or sequences of method steps, also to the extent that they relate to manufacturing, testing, and operating methods.